FACT SHEET FEBRUARY 29, 2012

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
CHLORIDE AND SULFATE WATER QUALITY CRITERIA AMENDMENTS

LSA Document #11-320
www.idem.IN.gov

Mitchell E. Daniels, Jr. **Governor**
Thomas W. Easterly **Commissioner**
100 North Senate Avenue, Mail Code 65-45, Indianapolis, IN 46204
Phone: (317) 232-8635 Toll Free: (800) 451-6027

Description
Amends 327 IAC 2-1-6, 327 IAC 2-1-8.2, 327 IAC 2-1-8.3, 327 IAC 2-1.5-8, 327 IAC 5-2-11.4, 327 IAC 5-2-11.5, and 327 IAC 5-2-11.6 to update the existing chloride criteria for the Non-Great Lakes system and Great Lakes system and make changes to the Non-Great Lakes system sulfate criteria and Great Lakes system implementation procedures to accommodate the updated chloride criteria.

Citations Affected
327 IAC 2-1-6; 327 IAC 2-1-8.2; 327 IAC 2-1-8.3; 327 IAC 2-1.5-8; 327 IAC 5-2-11.4; 327 IAC 5-2-11.5; 327 IAC 5-2-11.6.

Affected Persons
Wastewater dischargers that are National Pollutant Discharge Elimination System (NPDES) permit holders currently with chloride or sulfate limits or monitoring requirements and future dischargers who could have limits or monitoring requirements in their discharge permits.

Reason(s) for the Rule
Indiana adopted numeric water quality criteria, including the minimum surface water quality criteria for chloride currently in 327 IAC 2-1-6 and 327 IAC 2-1.5-8, in 1990 based on chloride criteria developed by the U.S. Environmental Protection Agency (U.S. EPA). New toxicological data on chloride have become available and the data used by U.S. EPA to establish the chloride criteria are old and need to be updated.

The Iowa Department of Natural Resources (Iowa DNR) has compiled the most up-to-date toxicity information available in the literature by utilizing information from studies commissioned by the U.S. EPA. The result of this effort by Iowa DNR and the U.S. EPA indicates that water chemistry parameters such as hardness and sulfate influence the toxicity of chloride to aquatic life. These studies resulted in the development of chloride criteria that are more consistent with the current scientific understanding about toxicity of chloride to aquatic organisms. IDEM is proposing to replace the current chloride criteria in 327 IAC 2-1-6 and 327 IAC 2-1.5-8 with the equations developed by the U.S. EPA and adopted by Iowa DNR. These equations will allow the aquatic life chloride criteria to vary depending on the hardness and sulfate concentrations in a waterbody. This proposed change to chloride criteria will apply to all surface waters in Indiana. The sulfate criteria in 327 IAC 2-1-6 will also be amended because sulfate criteria are expressed as a function of chloride concentration which is currently capped at the chronic criterion of 230 mg/L.

Establishing water quality criteria and standards to protect waters of the United States from impairment is a requirement of the Clean Water Act for which IDEM has delegated authority.

Most surface waters in Indiana are waters of the United States. In addition, there are surface waters of the state that are not waters of the United States, as that term is defined under the Clean Water Act. The Indiana water quality criteria and standards apply to these waters as well.

The Clean Water Act anticipates that the technical validity of a state's water quality criteria be reviewed every three years and that the criteria be modified if needed. Since the establishment of the current Indiana criteria, there has been greater progress in the scientific understanding of toxicity of chloride to aquatic life. The most recent Midwest state to modify its chloride aquatic life water quality criteria, using the latest EPA-approved valid studies and methods, was Iowa. Since the natural constituent composition of Indiana surface waters and the types of native and desired aquatic species in Indiana are similar to that of Iowa, IDEM is proposing to use the identical scientific justification for the same change to Indiana's water quality criteria that Iowa made.

The water quality criteria are used to establish water quality standards for each part of each surface water (segments) in the state depending on the designated uses assigned. Two specific applications for these standards are: (1) to establish the maximum rate and amount of the criteria substance any NPDES-permitted discharger may put into a specific waterbody (other restrictions such as a technology-based effluent limit may further constrain the amount of discharge allowed); and (2) to determine whether a particular waterbody has impaired water quality for the criteria substance.

Economic Impact of the Rule

IDEM does not anticipate any new costs to the state or regulated entities as a result of the revision to the chloride water quality criteria. The regulated entities (NPDES permit holders) affected by this rulemaking currently have chloride limits or monitoring requirements or the potential to have permit limits or monitoring. In most instances, chronic aquatic life chloride criteria calculated using the proposed equations will be less stringent than the 230 mg/L criterion currently in 327 IAC 2-1-6 and 327 IAC 2-1.5-8. However, acute aquatic life criteria calculated using the proposed equations will be more stringent than the 860 mg/L criterion currently in 327 IAC 2-1-6 and 327 IAC 2-1.5-8. Permit holders will still have costs associated with meeting chloride permit limits, but the costs may be less than under the currently established chloride water quality criteria.

A unique aspect to the issue of chloride toxicity is that it is dependent on hardness and sulfate (and, conversely, sulfate toxicity is dependent on hardness and chloride). In general, the harder the water, the less toxic chloride and sulfate are to aquatic life. In addition to sampling and analyzing for chloride, dischargers with permit limits will also need to sample and analyze for sulfate if they are not already doing so under their NPDES permits. Dischargers will not need to do hardness analysis because data is available throughout the state for hardness and the hardness concentrations fall within typical ranges for waterbodies. Analysis of sulfate samples by a certified laboratory typically costs in the range of $18 to $20 per sample analyzed based on IDEM's experience with its contract lab costs for sulfate analysis.

Benefits of the Rule

The benefit of this rulemaking is that the water quality criteria for chloride and sulfate will be established based on the most up to date toxicity studies for these parameters.

Description of the Rulemaking Project

In May 2011, two municipal NPDES permit holders having difficulty meeting their permits' chloride discharge limits presented the WPCB with a petition requesting rulemaking to amend the chloride water quality criteria according to the latest toxicity studies. An external workgroup made up of IDEM staff and a cross-section of stakeholders was established to discuss issues involved in this rulemaking. One workgroup meeting was held on September 29, 2011. Further meetings were deemed unnecessary because the science of the toxicity studies upon which the amended chloride criteria will be established is accepted.

Public Notices
First Notice of Comment Period: June 1, 2011, Indiana Register (DIN: 20110601-IR-327110320FNA).
Second Notice of Comment Period: November 16, 2011, Indiana Register (DIN: 20111116-IR-327110320SNA).
Notice of First Public Hearing: November 16, 2011, Indiana Register (DIN: 20111116-IR-327110320PHA).
Change in Notice of Public Hearing: January 18, 2012, Indiana Register (DIN: 20120118-IR-327110320CHA).

Scheduled Hearings
First Public Hearing: March 14, 2012.

Consideration of Factors Outlined in Indiana Code 13-14-8-4
Indiana Code 13-14-8-4 requires that in adopting rules and establishing standards, the board shall take into account the following:

1) All existing physical conditions and the character of the area affected.
2) Past, present, and probable future uses of the area, including the character of the uses of surrounding areas.
3) Zoning classifications.
4) The nature of the existing air quality or existing water quality, as appropriate.
5) Technical feasibility, including the quality conditions that could reasonably be achieved through coordinated control of all factors affecting the quality.
6) Economic reasonableness of measuring or reducing any particular type of pollution.
7) The right of all persons to an environment sufficiently uncontaminated as not to be injurious to:
   (A) human, plant animal, or aquatic life; or
   (B) the reasonable enjoyment of life and property.

Consistency with Federal Requirements
The applicable federal law is the Clean Water Act. Adoption of these rules will bring Indiana into compliance with federal requirements to conduct a triennial review of water quality standards and update them when needed. The water quality program in Indiana, including the NPDES program, is delegated to the state by the federal government; therefore, this rulemaking to update the chloride criterion will be required to be reviewed and approved by the U.S. EPA after it is adopted by the board and promulgated at the state level.

Rulemaking Process
The first step in the rulemaking process is a first notice published in the Indiana Register. This includes a discussion of issues and opens a first comment period. The second notice is then published which contains the comments and the department's responses to comments from the

first comment period, a notice of first meeting/hearing, and the draft rule. The Water Pollution Control Board holds the first meeting/hearing and public comments are heard.
The proposed rule, also known as the draft rule as preliminarily adopted, is published in the Indiana Register after preliminary adoption along with a notice of second meeting/ hearing. If the proposed rule is substantively different from the draft rule, a third written comment period is required. The second public meeting/hearing is held and public comments are heard. Once final adoption occurs, the rule is reviewed for form and legality by the Attorney General, signed by the Governor, and becomes effective 30 days after filing with the Legislative Services Agency.

Additional Information

Additional information regarding this rulemaking action can be obtained from MaryAnn Stevens, Rules Development Branch, Office of Legal Counsel, (317) 232-8635 or (800) 451-6027 (in Indiana). Technical information about chloride and sulfate water quality criteria can be obtained from the following staff of the Office of Water Quality:

John Elliott, Technical Environmental Engineer, Permits Branch (317) 233-0703.
Paul Higginbotham, Branch Chief, Permits Branch, (317) 232-8631.
Shivi Selvaratnam, PhD, Technical Environmental Specialist, (317) 234-7914.